Office of Naval Research International Field Office

Newsletter No.

Human Systems Integration Symposium

"Knowledge Warfare: Making the Human Part of the System"

Sponsored by
The American Society of Naval Engineers
HUMAN SYSTEMS INTEGRATION SYMPOSIUM

5 to 6 November 2001
Arlington, VA

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Keywords

Knowledge, Warfare, Human Factors, Systems

1. Executive Summary

Human Systems Integration Symposium
"Knowledge Warfare: Making the Human Part of the System

The American Society of Naval Engineers sponsored the first Human Systems Integration (HSI) Symposium in Arlington, VA, on 5-6 November 2001. The theme of this symposium was, "Knowledge Warfare: Making the Human Part of the System". This symposium was sponsored by the American Society of Naval Engineers, in association with numerous agencies, including the Surface Navy Association, Human Factors and Ergonomics Society, International Conference on Systems Engineering, and Society of Naval Architects and Marine Engineers, and supported by ASN (RDA) CHENG. Approximately 450 attendees participated in this meeting.
The purpose of this workshop was to gather world experts and provide a forum for focused discussion on the topics of the impact of changing missions on the new soldier of the 21st Century conducting operations in a civil-military environment.

This meeting provided an opportunity for senior level system designers, military leaders and researchers to meet and discuss topics that relate to the impact of system design on knowledge warfare and human performance.

Topics of discussion included the importance of improving Human System Integration in Naval Systems and an introduction to the new "Excel" program as part of the US Navy's revolution in training. Three executive level panels provided excellent insights into HIS.
The results of this seminar indicate there are critical changes occurring in system design, ship acquisition and training that will impact system designs of the future.

This newsletter is designed to inform national and international scientists, research and government institutions and international organizations about potential areas for research collaboration.

2. Background

This symposium attracted 26 exhibits and approximately 450 attendees from both industry and government. The theme of the conference was *Knowledge Warfare: Making the Human Part of the System*. Mr. R. Bost, Director, Optimal Manning for NAVSEA 05D and PEO Surface Strike, served as the chair and coordinator of this meeting.

3. Proceedings and Presentations

(for more details, please contact the ANSE organization for copies of the proceedings: http://www.navalengineers.org/Publications/Pubs.html)

4. Seminar Objective

The objective of this seminar was to focus on critical issues surrounding system design that would enhance Human System Integration in ship designs of the future.
The American Society of Naval Engineers' annual symposium draws representatives from numerous agencies, including the military, government and civilian academic sectors. The objective of this meeting was to focus on ways in which system designers could enhance ship designs that would optimise manning and knowledge management.

5. Seminar Description

The symposium was organized into a series of technical sessions and discussion panels. RADM Carnevale opened the meeting by challenging participants with his statement, "HSI is the most neglected engineering endeavor that affects the Navy today – we just are not doing justice to our Sailors". He emphasized the need to address issues related to designing systems that support the sailor to do his/her task. "We can't just think of manning our ships. We must think in terms of equipping our Sailors."

The keynote speaker, VADM Dennis McGinn, Deputy Chief of Naval Operations for Warfare Requirements and Programs (N7), emphasized the need to importance of addressing design issues as he invited participants to improve HSI in the Navy. Dr. Jan Cannon-Bowers' gave a presentation on Task Force Excel emphasizing the need to address training issues during the design phase.

There were three executive level panels that provided insights into HIS. The first panel, chaired by CAPT David Schubert, ONR, focused on The *HSI Vision of the Future Panel.* Panel members included Dr. Robin Keesee, HSI lead for the Army; Mr. Paul Cunningham, HSI for the Air Force; Dr. Stuart Rakoff, President of Rakoff Associates

(working with ASN (M&RA); and RADM Tom Bush, Deputy Director Theatre Air and Missile Defense. This panel of experts provided insights into the way the different services are handling HSI. The Army has a relatively well-established process while the Air Force has only a limited emphasis at this time. Dr. Rakoff provided meaningful insights on the importance of HSI in OPNAV and at the ASN level. RADM Bush presented his vision of future platform designs that emphasize optimized manning during the design phase.

The second panel, chaired by RADM C. Hamilton, PEO for Surface Strike, focused on the topic of *Key Issues in HSI* with a call to senior level management's support to enforce human factors in the design process. Panel members included RADM John Harvey, (Director, N12, OPNAV), Mr. T. Arcano (NAVSEA 05U), Dr G. Klein (Klein Associates) and CAPT C. Goddard, each of whom emphasized the need to address human system integration during the process of system engineering. CAPT Goddard highlighted the Navy's commitment to effective HSI as part of the DD(X) Program.

The final panel, chaired by Mr. Norman Polmar, focused on the topics of *HSI Strategies for Optimizing DD21 Manning and Reducing Manning on Existing Ships*.Panel members included VADM Henry Giffin III (ret.), VP of Anton Corp. Mr. Polmar presented the many specific HSI items that have been documented in studies over the last several years which must be corrected to improve our systems, such as quality of life issues, etc.
CAPT R. Bogdanowicz (COMNAVSURFLANT N1), discussed current fleet initiatives to reduce manning. The Honorable Robert B. Pirie, Jr. presented an address that focused on the historical tradition of HSI and its failure to be implemented.
The Honorable William A. Navas, Jr., Assistant Secretary of the Navy (M&RA), gave the closing address and expressed strong support for both the conference and commitment to HSI in ship designs.

6. Other Meetings

LOCATION	DATE	SUBJECT
Indiana http://www.navalengineers.org/Events/Events.html	14-16 May 2002	State of the Art Fleet Support
California http://www.navalengineers.org/Events/Events.html	13-14 June 2002	Combat systems:Improving Theater Warfare Effectiveness

7. Assessment

This was the first American Society of Naval Engineers (ASNE) meeting sponsored to address the topic of Human Systems Integration (HSI).
Presentations were given by highly respected leaders, including experts in system design, military leaders, and program managers. The format and selection of speakers played a critical role in the success of the meeting. Parallel sessions provided an opportunity for individuals to select topics of interest and seek out speakers that were meaningful to their programs. This format also provided speakers with an attentive audience who were there to engage in the dialogue of the topic. Each group of presentations was followed by a question/answer session that facilitated a meaningful exchange of information and ideas. The panel format provided participants with a cross-section of speakers focused on topics

presenting their respective views. The panel of experts also provided a means for participants to gain insight and expert guidance on topics of interest including human factors in ship design, technologies for optimized manning, system design and training.

Expert presentations provided information regarding the most current programs related to ship design for future carriers and submarines. Panel discussions provided an opportunity for participants to submit questions to the panel experts for the benefit of their experience and guidance. Each of the presentation groups provided an opportunity for discussion following Participants were actively engaged in that focused solely on the topic of military recruitment and retention. This meeting provided a great opportunity for world researchers to come together and exchange information on their nation's policies, procedures and plans for the future on this important topic. Approximately 50 individuals, representing 17 nations including Australia and Singapore, attended this meeting. There was a series of presentations and workshop discussion groups that focused on three major topics: selection, recruitment and retention.
Many participants commented that they were most impressed by the commitment of the military leaders to Human Factors in ship and system design. This was a significant outcome of this meeting in that engineers from a variety of communities witnessed the US Navy's commitment to Human System Integration during the early phases of ship design. While human factors psychologists have long since held that opinion, it was gratifying to see a shift in thinking among the engineers attending this meeting. I believe that this meeting made a significant impact on the way that engineers will think about human factors in ship/system design in the future.

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